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ABSTRACT

A beginning step in understanding intrinsic motivation in school can occur through examination of adolescents' subjective experience and the relationship between enjoyment and school learning. Subjects (85) filled out self-report forms, recording their level of concentration, moods, feelings and activities at random times during the waking hours of a normal week in their lives. Hypothesized is that when students perceive their classes as providing challenges which match their skills, they experience positive affect and involvement (theory of flow). The results indicate that indeed the students' energy in classes is related to their perception of the balance of challenges and skills. Suggestions for future research emerging from this study are proferred. (Author)

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THE DAILY EXPERIENCE OF HIGH SCHOOL STUDENTS*

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What do students typically feel like when sitting in class? What kind of involvement do they feel while playing sports? What emotions typify talking with friends? Is Friday night really that much different than Monday morning? These are the kinds of questions that are motivating our research. It is our conviction that people's feelings, their moods, and their concentration are crucial to their involvements in daily activity. By examining these ingredients of people's subjective experience we hope to accomplish a better understanding of ourselves and each other.

This report focuses on the daily lives of 85 adolescents. It shows both the school and non-school portions of their daily experience. We look at how their waking hours are divided between different environments and different activities. We look at the patterns of activities and mood changes over the sequence of a school day and the weekend. And

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we look at how their moods and other features of their subjective states are related to their activities in class as well as out of class.

This examination of the qualities of adolescents' daily experience is made possible by the newly developed experiential sampling method (Csikszentmihalyi, Larson and Prescott, 1977). It obtains self-reports from individuals as they go about their normal lives. The method documents the range of subjective experience that makes up a person's week.

Method

Procedure: Experiential Sampling

Participants in the study filled out self-report forms at random times during the waking hours of a normal week in their lives. The scheduling of self-reports was controlled by one-way radio communication. Each subject carried a booklet of self-report forms and an electronic paging device--the kind doctors often carry. Radio signals with a 50-mile transmission radius were emitted from a central location according to a predetermined random schedule. These signals caused the receivers to vibrate or make an audible "beep" (depending on their setting) which served as the stimulus for subjects to complete the self-report forms. Thus we obtained reports on their experiential state at points in time over a week.

The scheduling of the signals was designed to sample randomly from all of a participant's experience over a week. It specified signals between 7:30 A.M. and 10:30 P.M. for all seven days of the week. On Friday and Saturday evening signals extended until 1:30 A.M. For

non-school hours the signals were scheduled to occur at random timer within each two hour period, totaling 7 to 9 per day. During school hours they were signalled more intensively but in the analyses presented here a weighting has been used to adjust for this.

Sample: Suburban high school students

This report deals with experiential sampling data of 85 adolescents. The sample was obtained from a large high school in an economically and culturally diverse suburb of Chicago. The random process of selection was controlled to provide roughly equal numbers of persons in a two by four by two, sex by grade by social class, design. The bulk of the subjects participated in the study during the months of April and May. Twelve seniors who participated in November are included in some of the analyses of this report. Of those invited to participate, about 60% completed the study. Refusal was more frequent among boys. The rate of refusal was not affected by respondents' social class. In sum the sample is reasonably representative of a suburban high school, with some shortcomings.

Most participants responded cooperatively and enthusiastically to the study, reporting that the task was "interesting" and relatively unobtrusive. They responded to about 70% of the signals by completing a self-report form. (In a previous study of volunteers this rate was 89% (Csikszentmihalyi, Larson and Prescott, 1977). Omissions were due to a variety of reasons ranging from mechanical failure to the subjects forgetting the pager at home. Everyone was instructed to turn the pager off when they went to sleep and at any time when they "really feel they need privacy." Participation in

formal sporting events and long distance travel were other occasions where they reported being out of reach of the signals. It was our impression from questioning them that there was no major systematic bias in the omissions.

Results and Discussion

Where did students spend their time and what did they do there?

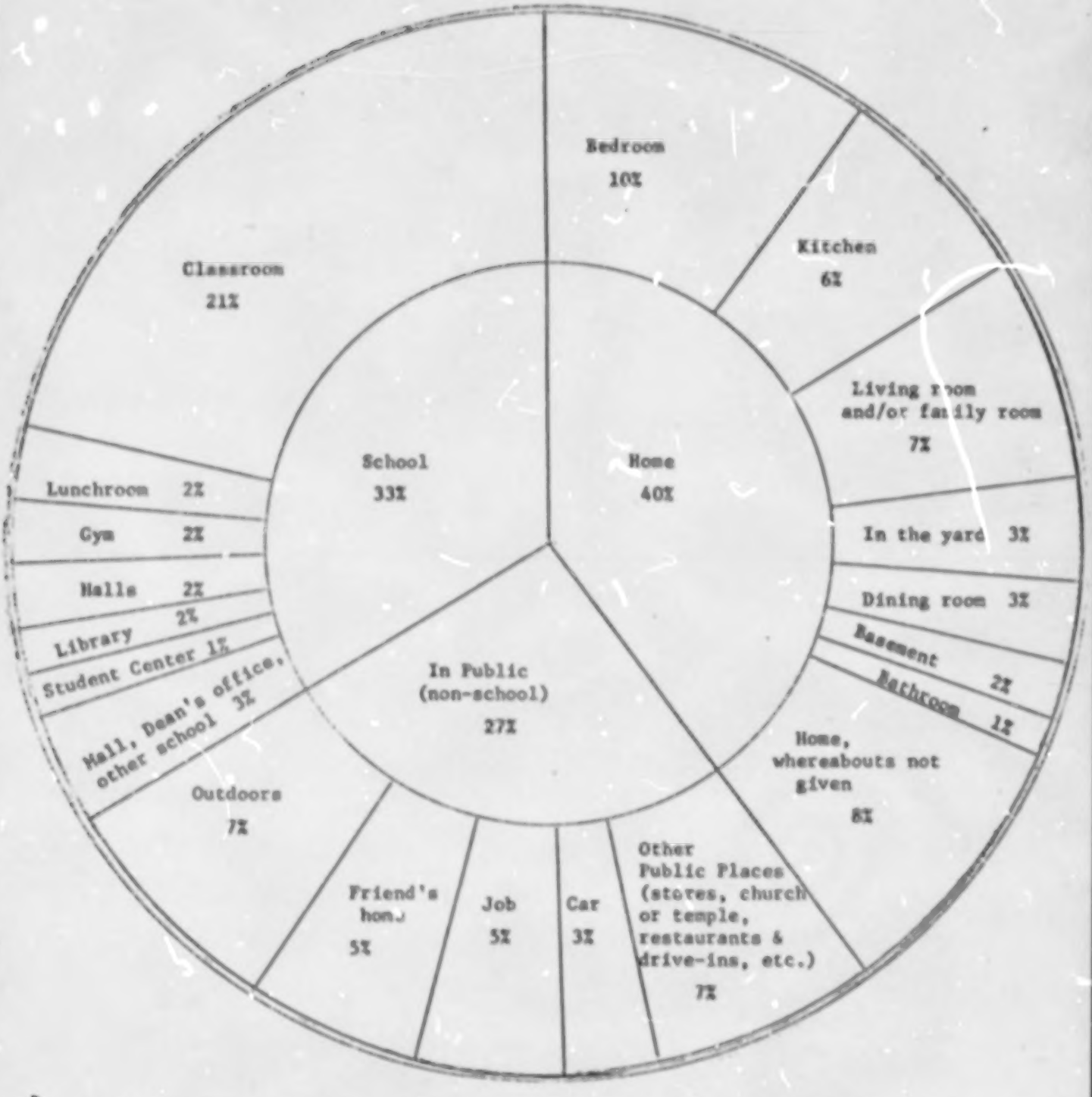
How do high school students spend their time? What do they do with the 16 hours that they are awake every day? Our sample of 4,943 self-reports provides an estimate of how their time is used over a week. Because the signals occurred at random moments, the self-reports contain a relatively representative sampling of their time.

On the pager questionnaire people were asked, "Where were you?" The first pie graph (Figure 1) shows how often they reported being in different places. That is to say, it shows where they spent their time over the week.

You can see that students spend most of their time at home and at school. While in school they are most often in classrooms, but they also spend time in the lunchroom, the gym, the halls, the student center, and the library. At home the greatest amount of time is spent in the bedroom, but the kitchen and living room are also popular places to be. When they are not at school or at home they are likely to be outdoors, at friends' homes, at work, or in a car.

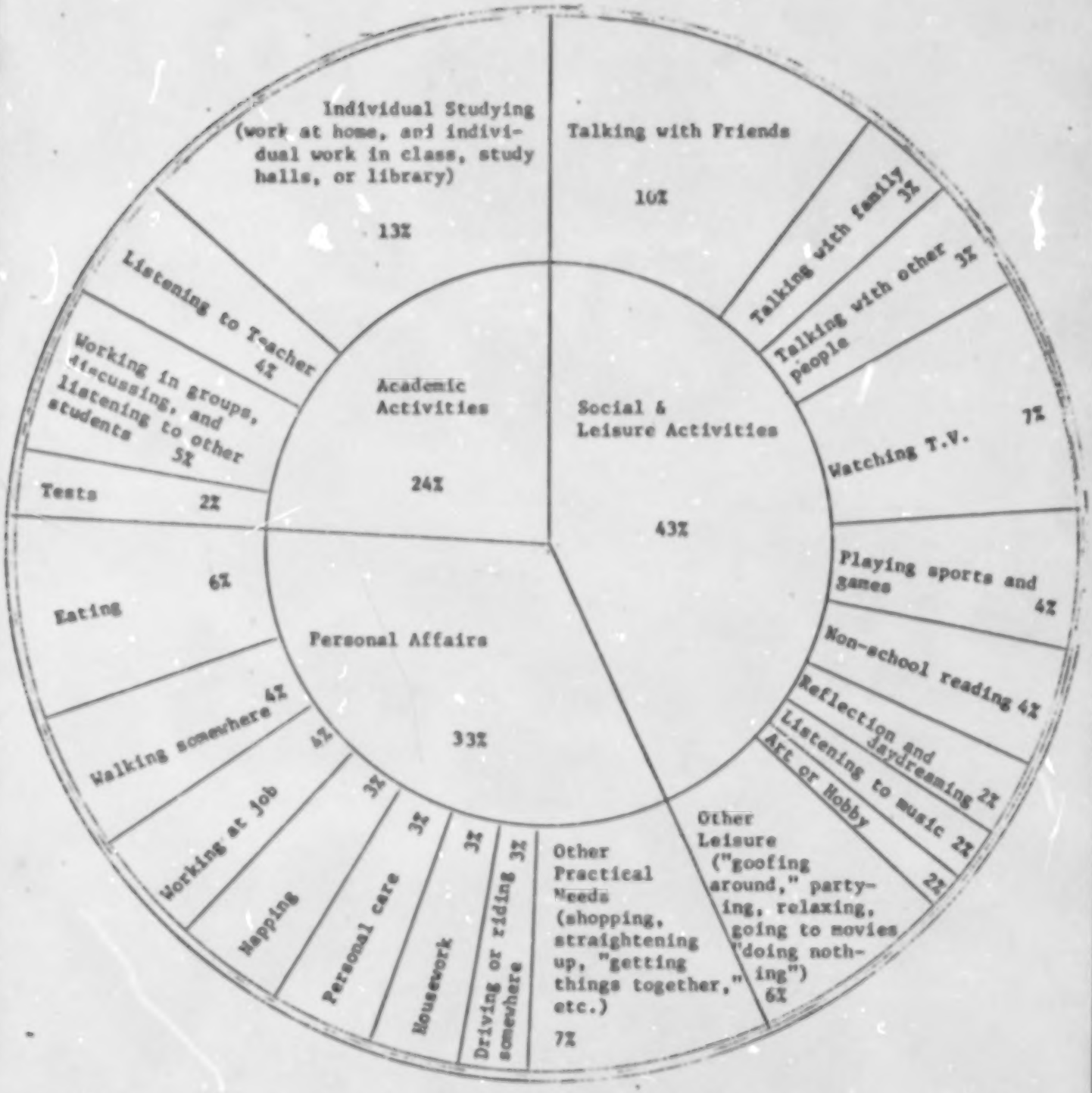
The pager questionnaire also asked them, "What was the main thing you were doing?" The second pie graph (Figure 2) shows the frequencies of the different activities they reported.

Figure 1. Where People Spend their Time*



*The graph indicates the % of self-reports in each place. Each 1% represents approximately 1 hour per week, so that 21% in classrooms means about 21 hours per week and so on for the other places students spend time.

Figure 2. What People Do with their Time*


Academic Activities 24%
Individual Studying (work at home, and individual work in class, study halls, or library) 13%
Listening to Teacher 4%
Working in groups, discussing, and listening to other students 5%
Tests 2%
Social & Leisure Activities 43%
Talking with Friends 10%
Talking with family 3%
Talking with other people 3%
Watching T.V. 7%
Playing sports and games 4%
Non-school reading 4%
Reflection and daydreaming 2%
Listening to music 2%
Art or Hobby 2%
Other Leisure ("goofing around," partying, relaxing, going to movies "doing nothing") 6%
Personal Affairs 33%
Eating 6%
Walking somewhere 4%
Working at job 4%
Napping 3%
Personal care 3%
Housework 3%
Driving or riding somewhere 3%
Other Practical Needs (shopping, straightening up, "getting things together," etc.) 7%

*The graph indicates the % of self-reports in each activity over a week. Each 1% represents approximately 1 hour per week, so that 13% individual studying means about 13 hours per week and so on for the other activities.

Believe it or not the students' most frequent activity was studying. This includes individual studying work in class, study halls, and the library as well as work at home. Studying took up 13% of their week's waking hours. When we add together studying and all class activities, academic school work takes up 24% of their time.

Talk with friends is the second most common activity. It fills 10% of their waking hours. If we include talk with family and with others, conversation fills 17% of their time. For a sample of adults, studied by our colleagues at the University of Chicago, this percentage is smaller. For the adults conversation filled only 10% of their time.

The third most common activity is watching T.V. But it is not as frequent as is often thought. Only 7% of their time was spent watching T.V. This figures to roughly an hour per day. For the sample of adults this proportion was also 7%.

The rest of the students' time was taken up with a great variety of other things. We were struck by how active they were. Very rarely did people report resting, relaxing or "doing nothing." In fact, for two-thirds of the self-reports they reported doing at least two things at once.

Figure 2 shows only the first thing that was mentioned on each pager sheet. If we also consider the second activities which people mentioned, studying is done during 14% of their waking hours, watching T.V. during 11%, and conversation during a whopping 36%.

Weekdays

The sequence of the day imposes a structure on teenagers' activities. They have limited freedom to decide how they will spend

their time. For these students, school normally claims the hours between 8:20 A.M. and 3:22 P.M. on weekdays.

The next set of graphs (Figure 3) takes the three most frequent activities from the pie graph above (Figure 2) and shows when they took place during the day. You can see that studying was done most frequently during school hours and again in the evening. Talk occurred throughout the day, both in school and out of school. Watching T.V. was most common in the late evening.

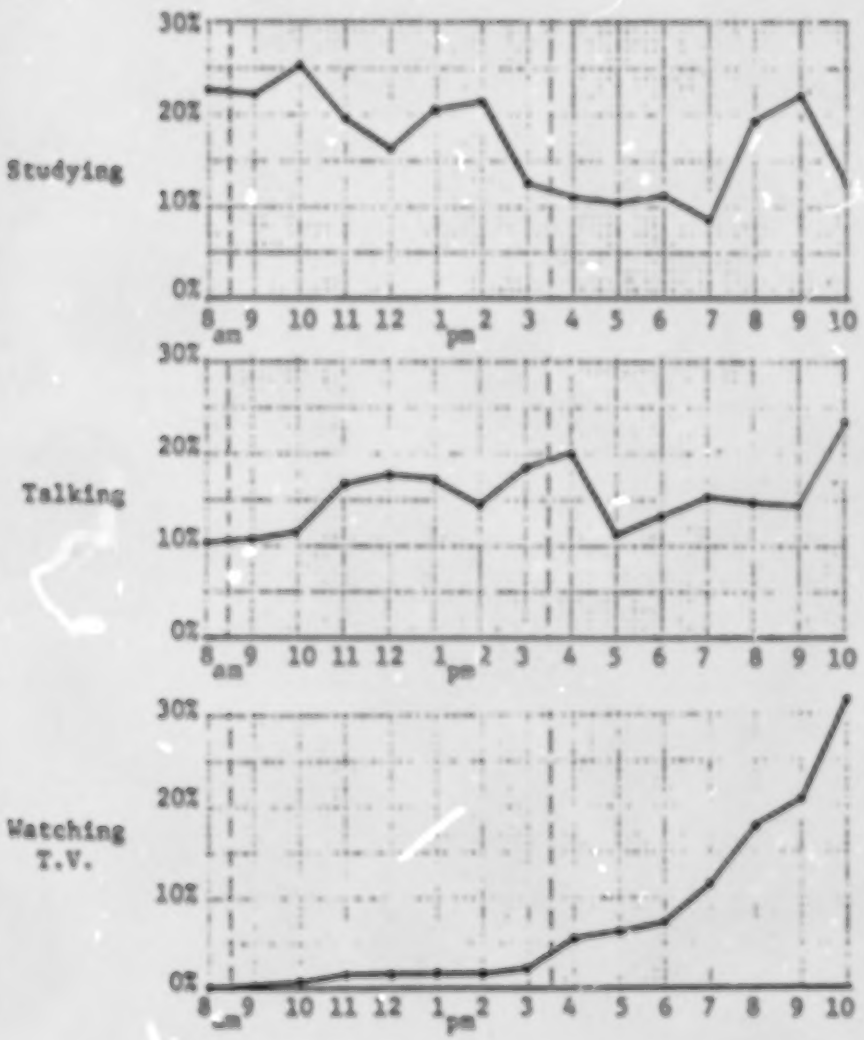
We next asked how the students' moods changed over the hours of the day. Students reported their moods on scales that looked like these:

		very	quite	some	neither	some	quite	very	
1.	happy	O	o	.	—	.	o	O	sad
2.	strong	O	o	.	—	.	o	O	weak
3.	excited	O	o	.	—	.	o	O	bored

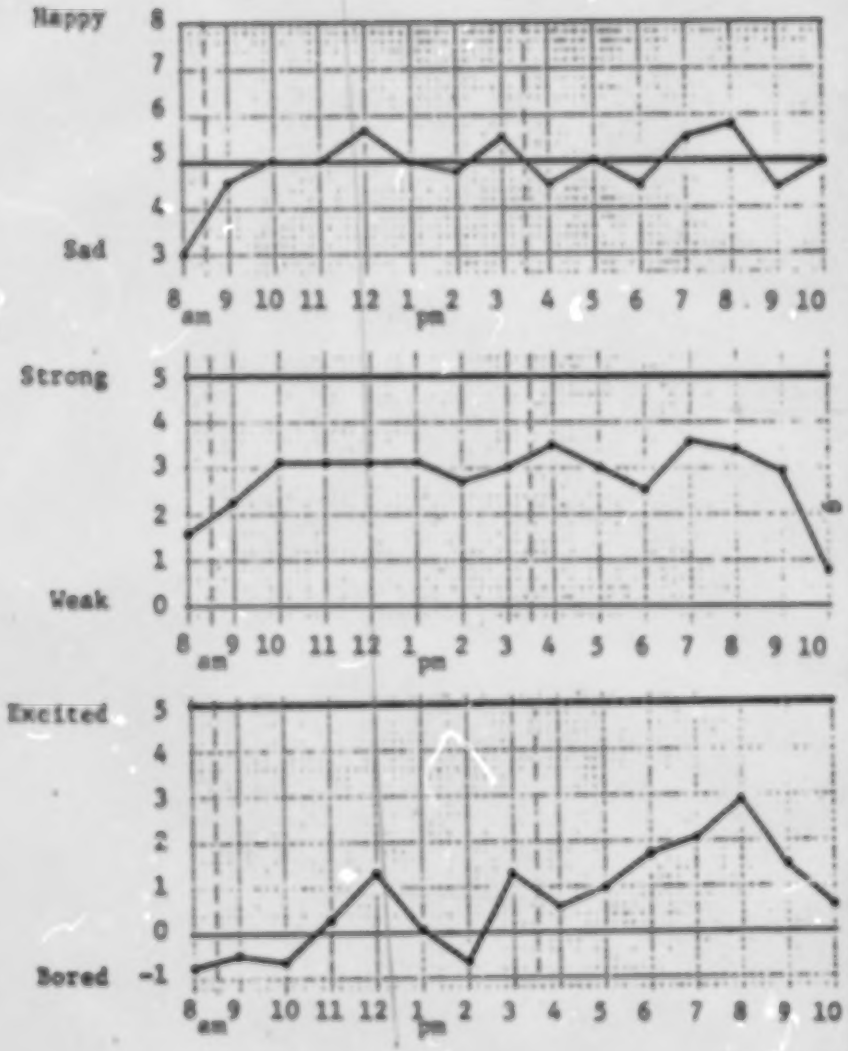
On each scale they circled a point that indicated how positive or negative their mood was on that scale. We have converted these responses to numbers. Positive numbers correspond to positive moods with higher numbers indicating more positive moods. Negative numbers correspond to negative moods. The numbers range from +15 (extremely positive) to -15 (extremely negative). Zero corresponds to a mood that is neither positive nor negative. On the graphs of moods it was necessary to show only the middle part of these scales. The double dark line on these graphs corresponds to "some" on the positive side of the scales (for example somewhat happy, somewhat strong). The single dark line corresponds to "neither."

Figure 3. Weekdays

Activities: % of students reporting the activity at each hour



Moods



The graphs on the right hand side of Figure 3 show how moods change over the hours of the day. The top one shows the students' average ratings on the scale of happy to sad. You can see that the peaks of being happy occurred at noon, 3:00 P.M. (before school is out!) and at 8:00 P.M.

The middle graph shows responses to the scale of strong vs. weak. They start out the day feeling weak and they end the day feeling weak, but in between they feel relatively strong. Reports of feeling strong are highest around noon, at 4:00 P.M. (after school is out), and in the early evening.

The lower graph shows the daily pattern for the scale of excited to bored. It is similar to the above graphs for the first part of the day. Noon is a time of greater excitement with periods of lesser excitement (more boredom) before and after. In the latter part of the day excitement increases steadily from 2:30 P.M. until 8:30 P.M. and then falls off.

This sequence of moods through the day undoubtedly reflects the differences in activities at different times in the day. Later in this report we will look at how moods are related to specific activities.

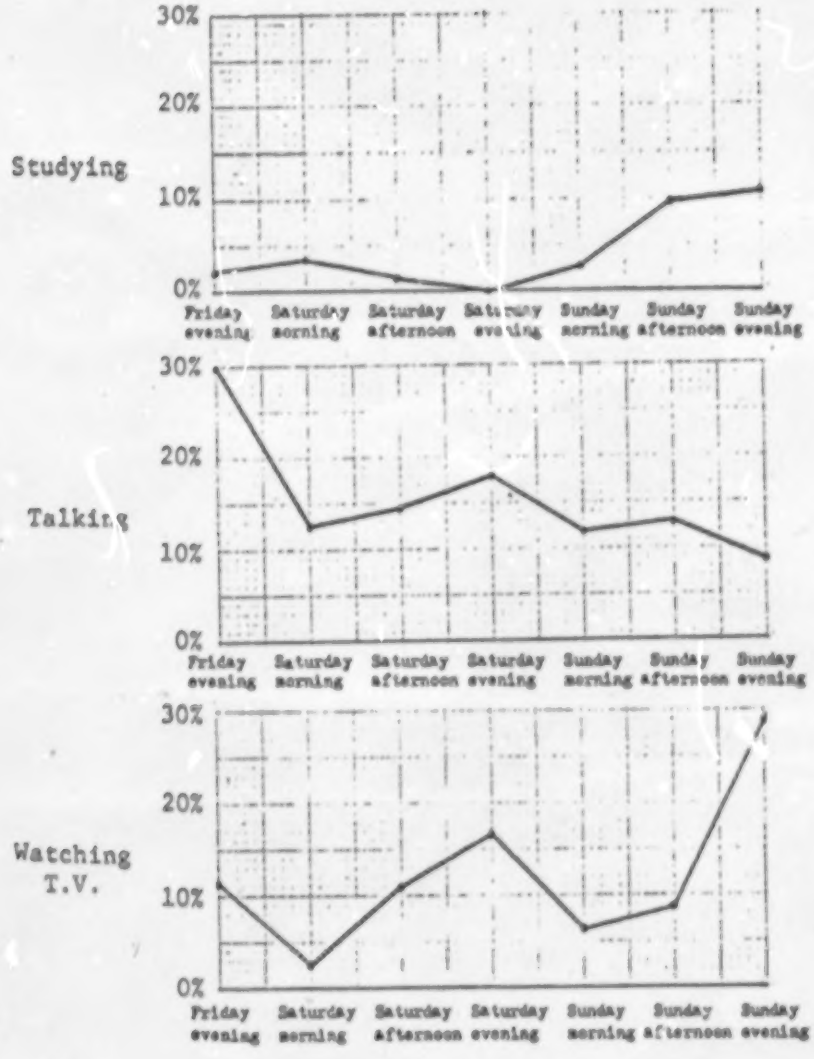
Weekends

Many people wait all week to get to the weekend. For adults as well as teenagers it is often thought to make the whole week worth while. The next graphs (Figure 4) show how the weekend is used.

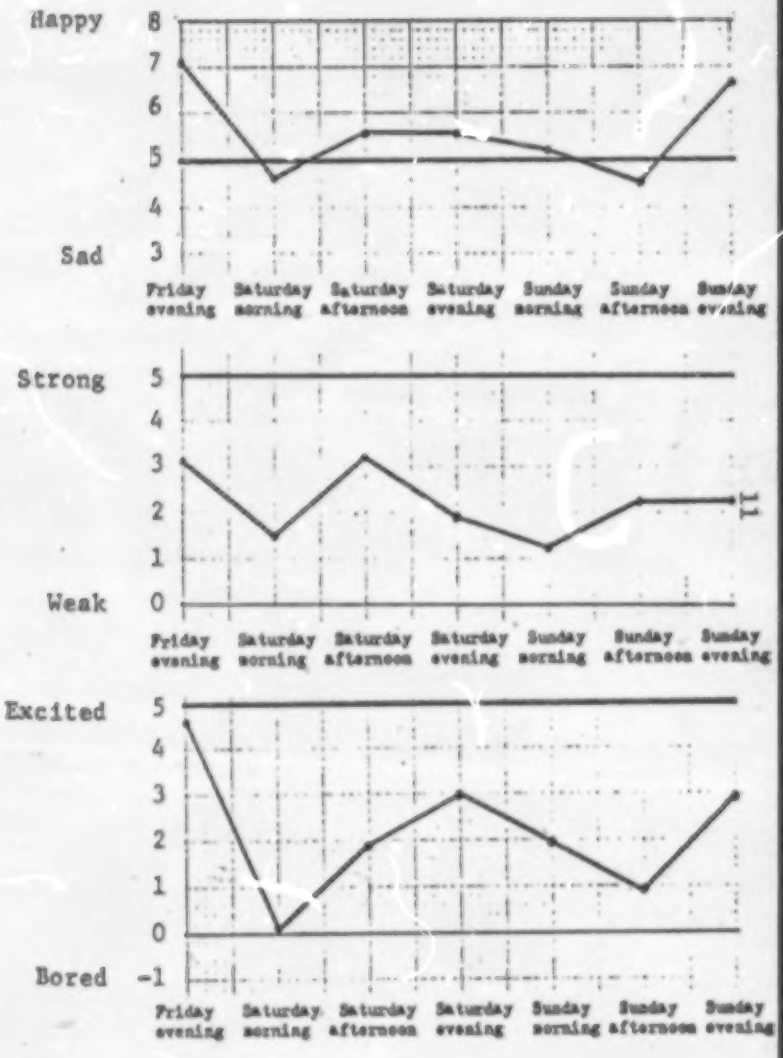
Studying is rare on the weekend, except for Sunday afternoon and evening. Talk is a frequent activity, particularly on Friday and Saturday nights. Watching T.V. is a major activity on all three weekend nights.

Figure 4. Weekends

Activities: % of students reporting the activity in each time period



Moods



The sequence of moods for the weekend (on the right hand side of Figure 4) suggests that Friday night is when moods are most positive. On Friday night the students are, on the average, more happy and more excited than at any other time in the week. They also feel relatively strong. Saturday and Sunday nights are other peak times of positive moods. By comparison Saturday morning and Sunday afternoon look relatively bleak. They are times of greater boredom and lesser reported happiness.

On the whole the weekend does not live up to its reputation. While Friday and Saturday night are positive times, the overall moods for the weekend are not greatly different than the moods for the week. In fact by comparing graphs you can see that the students felt stronger during the week.

Looking at the students' moods over the entire week we are struck by the fact that their moods are mostly positive. The only time their moods are negative on any of these three scales is between 8 and 10 A.M. weekday mornings when they are more bored than excited.

We caution the reader to remember that these are averages over all the students. They should not be taken to represent the pattern of moods for any individual in any particular week. There is a good deal of normal variation from the averages from person to person, day to day, and week to week.

The experience of being in class

The data we have on classroom activities are averages across many different classes. We used students' reports to classify their activities into what seemed to be natural categories. These included listening to

the teacher, listening to a student, taking a test, individual work, work in groups, and discussion. There is a weakness in this classification in that it pools together many different classes and subtly different class activities. Teachers often freely and creatively mix lecturing, discussion, answering questions, and explaining the next day's assignment. Thus, any attempt to neatly categorize these elements is inevitably rough.

The next graph (Figure 5) shows the students' self-ratings within these rough categories of class activities. Their self-ratings are shown for six dimensions of experience: 1) their level of concentration; 2) the degree to which they report that it is "hard to concentrate"; 3) their perception of the challenges; 4) their motivation, represented by responses to the question "Do you wish you had been doing something else?"; 5) their feelings, which is their overall mood rating of being happy, friendly, sociable and cheerful; 6) their energy, which is their overall mood rating at being active, strong, excited, involved, and alert. The values for the first four dimensions of mental state are ratings made directly by the students. The scales of "feelings" and "energy" are made up of averages of responses to several mood items. All six dimensions are presented on a scale of 0 to 9 with 4½ representing the middle point.

Across the top of the Figure we give the names and the proportion of the beeper sheets in which the students were doing the various activities. The proportions can be changed into the number of minutes per week spent in each activity, on the average, by multiplying the percentage by the number of minutes the students spend in class over a week. For example, if the student has five 40-minute periods a week

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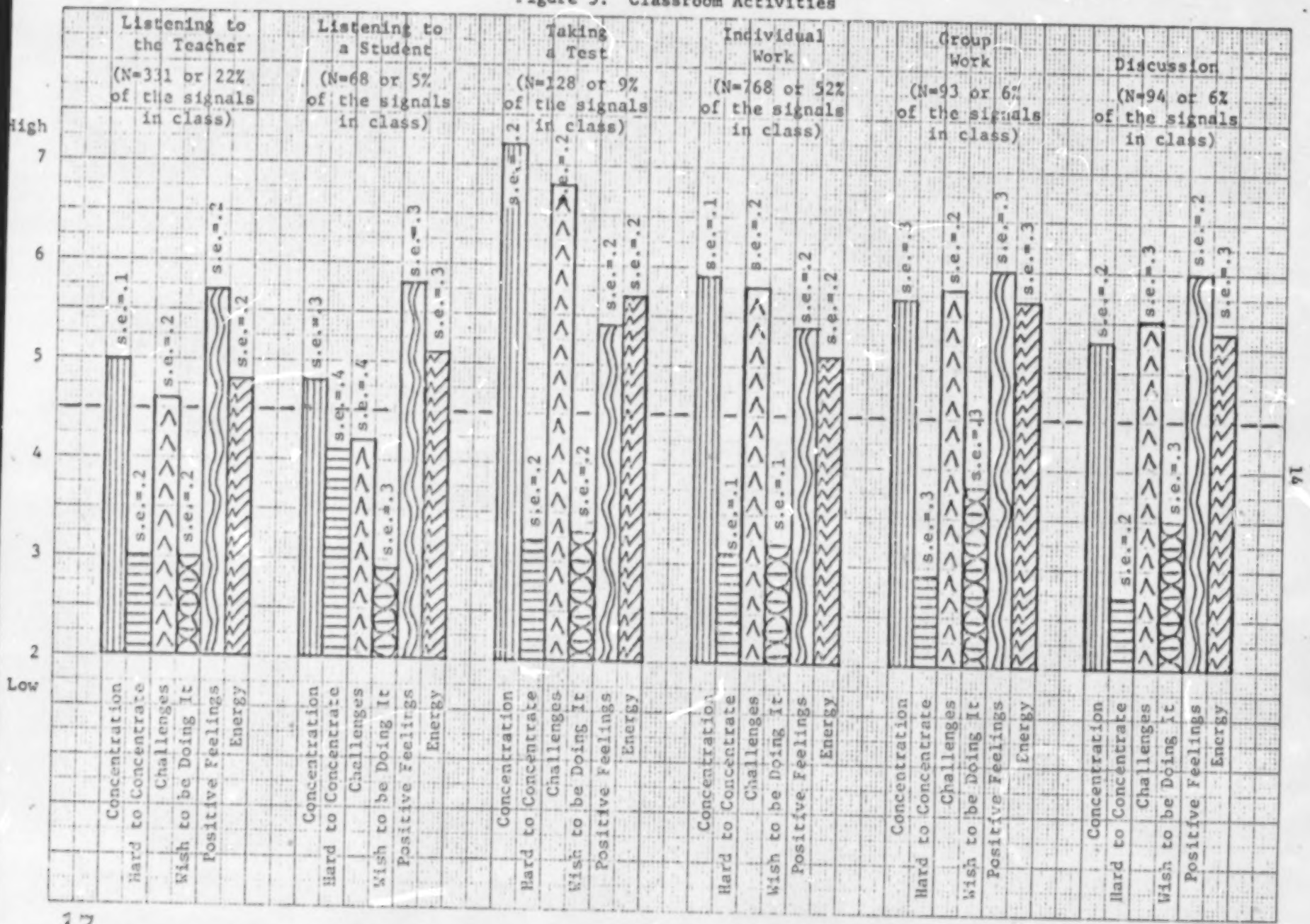
Figure 5. Classroom Activities



in a class, the total is 200 minutes. Then multiplying 200 by 22% gives 44 minutes a week, on the average, that the student is listening to the teacher.

The most surprising thing in this graph is the profile of responses for taking a test. Tests are supposed to be the most dismal and dreaded part of a student's existence, yet this is clearly not the case. Their feelings are not distinctly negative while taking a test and they do not show a strong wish to be doing something else. Most notably, it is a time when their concentration is extremely high and they feel very challenged.

Listening to the teacher is another basic and essential component of classroom activity. You can see that it is associated with relatively positive feelings in the students. An interesting comparison can be made between listening to the teacher and listening to a student. Students concentrate more when listening to the teacher and it is easier to concentrate. They also feel more challenged. Clearly teachers are more skilled at engaging students in class than are other students.

Group work and discussion are also mainstays among classroom activities. Presumably, teachers choose these two activities as means of engaging students actively in the subject matter. The data confirm that they have this effect. Students report relatively high concentration, high challenges, and positive motivation during group work and discussion.

Intrinsic Motivation In School

The Problem. A central concern of those involved with adolescents in schools is how to motivate them to learn what they require to become independent adults, in ways they find consonant with their sense of

personal competence and freedom. The position taken in this research is that when students perceive their classes as providing challenges which match their skills, they experience positive affect and involvement. This experience is viewed as intrinsically motivating and resulting in increased enjoyment of classes.

The Theory. To understand enjoyment a model developed by Csikszentmihalyi (1975) has been employed which posits both the elements of enjoyment and the structure of activities in which it typically occurs. The model was originally derived from interviews with adults, who were asked to describe their subjective experience when deeply involved in either a recreational activity or work. When things were going well for the adults they characterized their experience as complete but easy concentration of attention, without distraction or intrusion of personal problems, with a loss of the sense of time and self, clear goals and feedback, and a feeling of being competent and in control. Within the model this experience is called "flow." The word "flow" was often used by respondents to describe how they felt when acting with total involvement.

In Csikszentimihalyi's theory flow can be experienced potentially in any situation or activity, since it is the person's perception of the challenges and skills that determines the experience. However, some activities are so structured as to allow flow to be experienced more reliably than others. These might be called flow activities. While there are great differences among them, what they have in common is a structure in which individuals are able to perceive challenges, or opportunities for action, which match their perceived skills, or

capabilities. That is, whether or not a person is in flow depends on his or her perception of what the challenges and skills are, as well as the balance between them. This can be shown graphically:

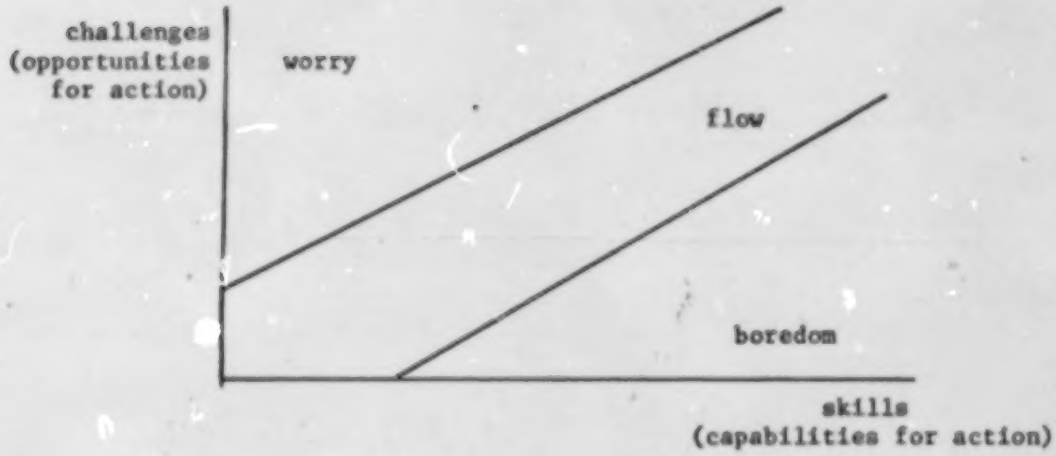


Figure 6. The Flow Model

Where it seems to a person that the challenges in an activity are greater than the skills he or she has to meet them, the result is worry, with anxiety at the extreme. If, on the other hand, it seems to a person that the challenges are less than his or her skills, the result is boredom, with anxiety again the result of a severe imbalance. The intrinsically motivating experience of total involvement, that is, the flow experience, occurs when the perceived challenges and skills are equal.

Although flow is often experienced within activities like games, art, and rituals, the theoretical model predicts that it can be experienced in any activity, including work and school, when the individual perceives

the opportunities and his or her capabilities to be in balance. Therefore, the theory leads to the expectation that when students perceive a balance of challenges and skills in their classes they will experience positive affect and involvement.

The Results. The flow theory leads to the prediction that when students perceive a balance of challenges and skills in their classes they will experience positive affect and involvement. This expectation can be shown graphically:

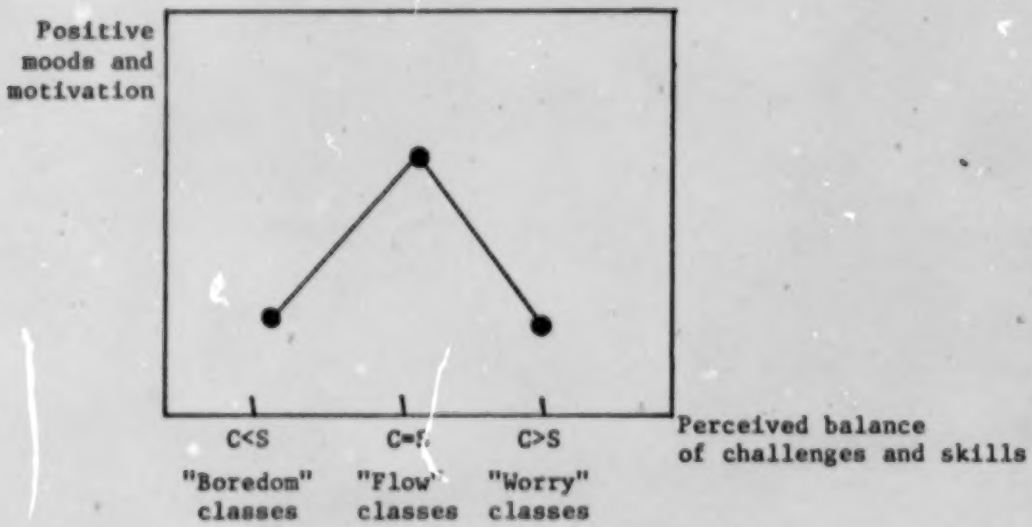


Figure 7. Prediction of moods and motivation from students' perceptions of the balance of challenges and skills

To test the theory we isolated three extreme groups of self-report forms on the basis of the students' self-reports of their perceptions of their skills and challenges in individual classes. Where the students marked high skills and low challenges we categorized the classes as "boredom" classes. Where the students' ratings of skills and challenges

were both high, we called them "flow" classes. And where the students indicated high challenges and low skills we labeled the classes "worry" classes. To test the theory we then looked at the relation between the perceived balance of challenges and skills, as categorized in the three groups of classes, and other self-report variables. These other variables on the self-report forms included two mood variables and a motivation variable. The two mood variables were derived from a factor analysis of the thirteen scale semantic differential on the self-report form. The first mood we have called "energy." It is composed of the moods: strong, alert, active, involved and excited. Here is the relation we found between the dependent variable "energy" and the independent variable, perceived balance of challenges and skills:

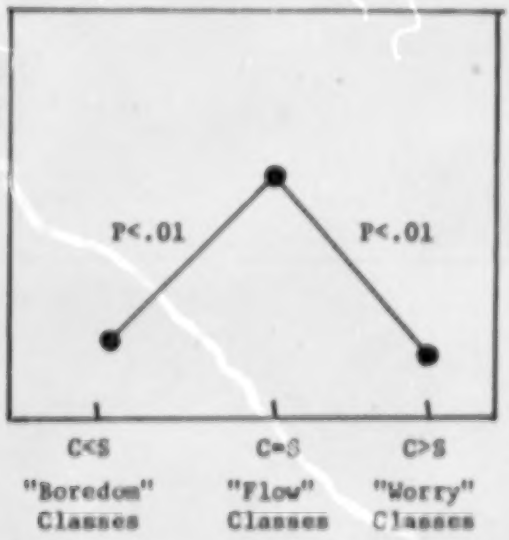


Figure 8. The relation of energy in classes to the perceived balance of challenges and skills

As predicted by the theory the students' energy in classes is related to their perception of the balance of challenges and skills.

We called the second mood "positive feeling." It is composed of the moods: happy, cheerful, friendly, and sociable. Relating the dependent variable "positive feeling" to the independent variable, perceived balance of challenges and skills, we found:

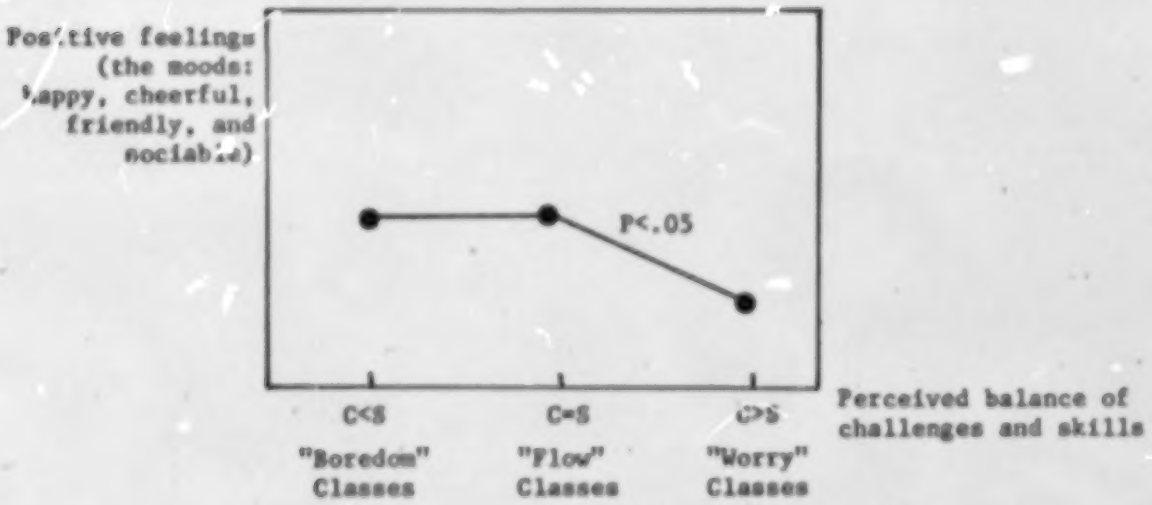


Figure 9. The relation of positive feelings to the perceived balance of challenges and skills

The positive feelings of the students do not drop in classes where the perceived skills are greater than the perceived challenges. What the "boredom" and "flow" classes have in common is the students' perception of high skills. And it is the perception of high skills which relates to the positive feelings.

We next looked at the students' motivation: the extent to which they wished to be doing what they were doing when they were paged. The relationship of motivation to the perceived balance of challenges and skills is the same as the relationship between positive feelings and the perceived challenges and skills.

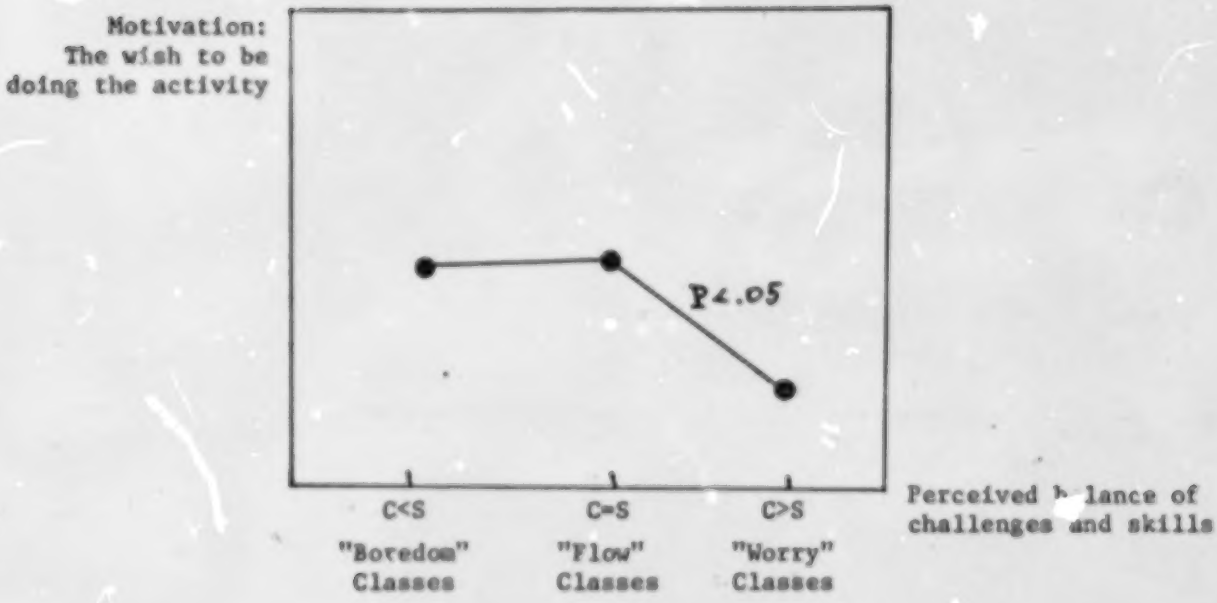


Figure 10. The relation of motivation to the perceived balance of challenges and skills

Once again we see the importance to the students of their perception of their skills in classes. We do not find the predicted drop in motivation in those classes where the perceived skills are greater than the perceived challenges.

The self-reports also included additional variables which may help clarify the students' experience in each kind of class. The variables are: how well the person was concentrating; how hard it was to concentrate, how much the person felt there was at stake; and how much control he or she felt she had at the moment. These four variables are shown in the following table, for each kind of class.

First, we note that the students' reported concentration is low in the "boredom" classes and high in both the "flow" and "worry" classes. However, the effort to concentrate is low for both the "boredom" and

TABLE 1

THE RELATION OF COGNITIVE VARIABLES TO THE PERCEIVED BALANCE OF CHALLENGES AND SKILLS

Cognitive variable	Perceived balance of challenges and skills		
	C<S "Boredom" Classes	C=S "Flow" Classes	C>S "Worry" Classes
Concentration	low	high	high
Effort to concentrate	low	low	high
Stakes	low	high	high
Control	high	high	low

"flow" classes, whereas it is high for the "worry" classes. Thus, where perceived skills are greater than perceived challenges the students' concentration is low and they are making little effort to concentrate. In contrast, where perceived challenges are greater than perceived skills, there is high concentration but also with great effort to concentrate. It is in the "flow" classes, where perceived challenges and skills are high and equal, that we find the combination of high concentration with little effort to concentrate.

The importance of high perceived challenges and skills is also seen in the self-reports of stakes and control. In the "flow" class the students report both high stakes and high control. In contrast, while the "boredom" classes also offer high control, the students report feeling they have little at stake. Furthermore, in the "worry" classes the pattern is reversed. Where the perceived challenges are greater than the perceived skills, the students report high stakes but low control.

In sum, the "flow" classes are occasions in which the students report: high energy, positive feelings, wish to be doing the activity, high but easy concentration, with high stakes, and high control. It is this experience which provides intrinsic motivation in school. Elsewhere, (Mayers, 1978) we report on the relation of this intrinsically motivating experience to academic performance.

Their involvement and moods.
in daily activities

The next graph (Figure 11) shows the students' subjective experience during six frequent activities.

In terms of overall involvement playing sports and games shows the highest profile. At these times the students have the highest concentration, they feel most challenged, they desire most to be doing the activity, and their energy is at its peak. It is, however, a time when concentration is hard.

The students' feelings are most positive during talk with their friends. Talk with adults shows a close second on this dimension. These two activities rank as the second and third most involving of these teenagers' activities. It is interesting to note that talk with adults inudues higher challenges and concentration than talk with (same-age) friends.

Watching T.V. ranks as the least engaging activity in which the students participated. It is associated with the lowest challenges and, along with "personal care" the lowest concentration. Also, the students' report relatively low positive feelings and energy while watching T.V.

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Figure 11. Out of Class Activities

Conclusion

This study represents an attempt to understand intrinsic motivation in school. From this work a number of suggestions for future research have emerged which may be briefly mentioned here. First, the subjective reports of students, particularly in flow classes, need to be complemented with close and systematic observations within the classroom. The breakdown of students' responses by activities in classes is only the barest beginning in this direction. Second, the ongoing experience of the students needs to be related to the ongoing experience of teachers and administrators. The problem will be to understand their enjoyment as professionals at work and in their personal experience, and how this relates to the experience of students. Finally, it will be important to explore alternative ways in which the students' perceptions of their ongoing experience in school can be made available to teachers, advisors, and administrators.

A beginning has been made in understanding the relation between adolescents' enjoyment and school learning. This has been accomplished by combining the theory of flow and the method of experiential sampling. The theory of flow focuses attention on the quality of experience. It takes as a reference point the individual's subjective state when totally involved in a most enjoyed activity. The method of experiential sampling provides an holistic perspective with which to understand the place of involvement in the individual's overall experience. Together the theory and the method applied to adolescents' school experience have raised new questions in theory and new possibilities for intervention in school practice.

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